MORPHEUS M5

Workstation for gaseous anaesthesia

code: OM9000 (5 Flowmeters)

rev.: 4 - dd 01/09/2009

DESTINATION OF USE

The MORPHEUS is a workstation for gaseous anaesthesia and it can be used on adults, children and newborns patients.

The MORPHEUS is suitable for administration of Oxygen - Air -Nitrous Oxyde - Halothane - Enfluorane - Isoflurane - Sevoflurane - Desflurane - Halocarbon 22 mixtures.

GENERAL DESCRIPTION

The unit for anaesthesia MORPHEUS is completed with:

- electronic gas mixing device O_2 / N_2O / AIR
- lung ventilator
- heated closed/open valves group w/2.5 Kg. CO_2 absorber
- double interlock/selectatec support for 2 vaporizers
- gas supply group
- breathing monitoring system

GENERALITIES

Structure	Light aluminium alloy, varnished steel and plastic moulds
Wheels	N. 4 - Diameter 100 mm - The two front ones with pedal brakes
Work shelf	Dimensions 37 x 35 - 78 (L x D - H) cm
Shelves	Dimensions 61 x 36 - (L x D) cm Max loading capacity 30 Kg
Drawer	No. 2 : inner dimensions 38 x 34 x 14 (L x D x H) cm
Cylinder support	No. 2 vertical cylinder supports, on back side (for cylinders up to 7 lt. capacity) and round rubber pads.
Vaporizer connection	Double vaporizer connection Selectatec type, with system which avoid the contemporary opening of the 2 vaporizers.
Auxiliary power supply outlets	No. 3 outlets SCHUKO 220 Vac (max 10 A)
Work shelf lighting lamp	12Vdc 20Watt
Other	• Oxygen therapy group • Jar group for Venturi tracheal aspiration
Dimensions	73 x 73 x 136 (L x D x H) cm (without monitor)
Weight	100 kg (without accessories)
Environmental Conditions	Temperature from 10 to 40°C Relative humidity from 10 to 90% non-condensing

MECHANIC GAS MIXING DEVICE

General description

It has the function to regulate the capacity and the concentration of gas mixture (Air, O_2, N_2O), as well as to deliver it to the anesthetic gas vaporizer.

It allows to select the mixture to be delivered (Air-O2, or N2O-O2) and the O2 enrichment to the delivered mixture in emergency situations. It includes a device which guarantees a minimum concentration of 25% oxygen in all gas erogating conditions (MIX-LIFE device).

Through the three pressure gauges on the front panel it allows the continuous control of medical gas feeding pressure coming from the gas pipelines system.

Oxygen rotameter	Scale 0.2 - 12 l/min. Resolution: 0.1 l/min up to 1 l/min and 0.5 l/min up to 12 l/min Accuracy: ± 10% of the displayed value or ± 1% of end scale whichever is the worse case
Nitrous oxide rotameter	Scale 0.2 - 12 l/min. Resolution: 0.1 l/min up to1 l/min and 0.5 l/min up to 12 l/min Accuracy: ± 10% of the displayed value or ± 1% of end scale whichever is the worse case
Air rotameter	Scale 0.2 - 12 l/min. Resolution: 0.1 l/min up to 1 l/min and 0.5 l/min up to 12 l/min Accuracy: ± 10% of the displayed value or ± 1% of end scale whichever is the worse case
Low flows oxygen rotameter	Scale 0.01 - 1 l/min. Resolution: 0.02 l/min up to 0.1 l/min and 0.05 l/min from 0.1 to 1 l/min Accuracy: ± 10% of the displayed value or ± 1% of end scale whichever is the worse case
Low flow nitrous oxide rotameter	Scale 0.02 - 1 l/min. Resolution: 0.02 l/min up to 0.1 l/min and 0.05 l/min to 0.1 a 1 l/min Accuracy: ± 10% of the displayed value or ± 1% of end scale whichever is the worse case
Medical gas supply	**OXYGEN** Gas pressure included between 280 kPa and 600 kPa (2,8 – 6 bar). Max. required flow, 90 l/min. **NITROUS OXYDE** Gas pressure included between 280 kPa and 600 kPa (2,8 – 6 bar). Max. required flow, 15 l/min. **MEDICAL COMPRESSED AIR** Gas pressure included between 280 kPa and 600 kPa (2,8 – 6 bar). Max. required flow, 90 l/min
Control gauges	No. 3 on the front panel (O_2 - N_2O - ARIA), scale 0 - 10 bar

Vaporizer connection	Double vaporizer connection Selectatec type, with system which avoid the contemporary opening of the 2 vaporizers.
Safety devices	**AGAINST THE ADMINISTRATION OF HYPOXIC MIXTURES** MIX-LIFE: Guarantees a minimum concentration of 25% oxygen on mixtures that include nitrous oxide (N_2O) **IN CASE OF LACK OR LOW OXYGEN PRESSURE** CUT-OFF: Audible alarm with immediate cut-off of nitrous oxide delivery **AGAINST HIGH PRESSURE IN SUPPLY** Safety valve calibrated at 0.8 bar for the protection of the glass rotameters **IN CASE OF LACK OR LOW COMPRESSED AIR PRESSURE** All the devices supplied with compressed air are automatically supplied by oxygen (except the flowmeter) **AGAINST THE CONTEMPORANEOUS DELIVERY OF AIR AND N20** Selecting valve on the front panel.
Deviator with double outlet	Device to deviate fresh gas addressing them to the anaesthesia unit valves group or to a TO and FRO patient circuit for manual ventilation
O_2 emergency By-Pass	By push button, on the front panel. Max. flow 35 l/min.
IN gas socket on gas supply group	• No. 3 – sockets for distribution system (O_2 - N_2O - ARIA) • No. 2 – sockets for cylinder (O_2 - N_2O)
OUT gas socket on gas supply group	• No. 2 – sockets for O_2 • No. 1 – socket for AIR • No. 1 – fresh gas connector for external use for ex. TO and FRO (selectable by lever on front panel)
Other	• Socket for recycle of exhaust monitor gas • Connection for anaesthetic gas scavenging (optional device: 300A or 200P)

BREATHING SYSTEM

General description	Compact system with automatic connections, easy dismountable and autoclavable
	It allows the ventilation in modality: **real open circuit, semi-closed circuit, closed circuit at low flows**. The system also allows the spontaneous and manual ventilation also in case of machine breakdown or machine off. The CO_2 absorber canister has a rapid connection and this allows its replacement also during operation. The recycling system is a selective type, hence the soda lime and fresh gases consumption is reduced to the minimum. Reservoir bag orientable support to facilitate the manual ventilation. The circuit is heated to reduce condensation and heat the fresh gases. The switching from one modality to another is completely controlled by ventilator without any user's action on valves group. All group internal connections are stainless steel made. The group is completely autoclavable and does not have disposable parts.

LUNG VENTILATOR

Fixing	On the upper part of the trolley by a quick connection device to the main structure
Type of Ventilation	IPPV
Control modality	Electronic by microprocessor The equipment is equipped with an electronic system which, at every start-up and for a few seconds, verifies all the hardware and software electronic parts for safety purposes. O_2 cell automatic calibration, leakages test and compliance calculation are on operator request only.
Dead space compensation system	Automatic
Flow generation	Digital System

Gas feeding	Medical Compressed Air or Oxygen with pressure included between 280 kPa and 600 kPa (2,8 – 6 bar)
Ventilation Modes	AUT (IPPV + AST) / PCV / PSV / SPONT - SIMV / APNOEA BACK-UP / MANUAL (performed via breathing system or via manual external system for example, TO and FRO)
Breathing rate	From 5 to 140 bpm
I:E Ratio	1:1 - 1:2 -1:3 - 1:4 - 2:1 - 3:1.
Inspiratory Pause	From 0 to 50% of the inspired time
SIMV Frequency	From 0 to 139
Tidal Volume	From 20 to 1500 ml
Minute Volume	From 1 to 30 litres
PEEP	0-20 cm H_2O
Inspiratory Flow	From 0 to 100 lit/min
Oxymeter	Built-in with display of O_2 concentration Min. resolution 1% Automatic calibration procedure
Bronchomanometer	Electronic with led bar and display from -10 to 80 cmH_2O
Trigger (sensibility)	Electronically adjustable in continuous way from -1 to -9 cmH_2O under PEEP level
Safety	Airways pressure electronic and mechanic limit Self-diagnosis system
User's Interface	LED Display / Back-enlightened LCD Display / LED bar Broncomanometer Other LED indicators / Control keys and knobs
Alarms	LOW/HIGH O_2 - HIGH / LOW AIRWAYS PRESSURE - APNOEA - POWER SUPPLY - LOW BATTERY - GAS SUPPLY - HIGH/LOW MINUTE VOLUME - HIGH/LOW TIDAL VOLUME - HIGH/LOW RATE
Flow sensor	By magnetic perturbance, reusable, sterilizable

TFT 6,5” colour respiratory monitor

Description	The TFT Monitor can display the respiratory parameters and the curves and loops clearly, providing immediate information on the patient’s ventilation. The user interface and the alarm and patient monitoring functions are designed to make future equipment updates easier. The TFT Monitor can be connected to multigas analyzer modules.
Functioning and control	Microprocessor electronic: every time the equipment is switched on, a check lasting a few seconds is carried out of all the hardware and software of the system for safety purposes.
Operator interface	Keyboard controls (function selection; ESC; return; alarm silencing) and Encoder knob
Display area	Parameters measured ; Messages ; Graphs ; Zoom Area (2 zone); Functioning modes
Parameters measured	Pmax, Pmean, Pause, PEEP, Vti, Vte, ExpMV, Rate, FLOWi, FLOWe, I:E, Tinsp, Tesp, Tpause, Cs, Ri
Messages	Operating mode; Interruptions; Functioning time; Alarm
Graphs available	Ventilation graphs; Loop ; Trend ; Help ; Parameter Zoom page
Zoom Area	2 areas for the selection of the ventilation parameters
Functioning Modes	Zoom Area (2 zones); Alarms setting (default); Loop ; Trend ; Help ; Monitor ; Alarm volume ; Demo display ; Gas type configuration and selection.
Zoom Area (2 zones)	Possibility of selecting and displaying any parameter measured
Alarms	Manual or automatic setting of the alarm minimum and maximum limits Buzzer (volume adjustment) and visual alarm (flashing symbol in the message area) indication Alarms: Pmax, Pmean, Ppause, PEEP, VTi, VTe, Expmv, Rate, Cs, Ri.
Ventilation curves	Paw ; Flow ; Volume
Loop	Volume / Paw ; Volume / Flow
Trend	Trend scale and period setting Trends: Pmax ; Pmean ; Ppause ; PEEP ; VTi ; VTe ; ExpMV ; Rate ; FLOWi

Help	Display of the user's manual (optional)
Monitor	Setting of the following displaying conditions: LCD / Remote 1; LCD / Remote 0; Zoom parameters page displaying
Zoom Parameter Page	Displayed parameters: PEEP ; Flow Insp ; Minute Vol. ; I:E ; Pmax ; Flow ; Exp ; Tidal Volume ; Rate Displayed curves: Paw ; Flow ; Volume
Gas type configuration and selection **(optional)**	• Measure gas; Stop gas; Set agent; Set zero; Set O2 %; Set Gas alarm; Set CO_2 unit; • CO_2, O_2, N_2O, AG
Alarm volume	Can be set from 1 to 3
Demo option	Available
Language option	Available
Flow sensor	Automatic setting of OFF-SET and GAIN parameters
Connection	9 poles male connector, RS-232 / Remote monitor

MULTI – GAS (optional)

Multigas analyzer modules connection	Available
Description	Ultra small infrared main stream multi-gas probe comprising a multi channel IR-bench, barometric pressure sensor, power regulator, signal processor and a RS-232 interface.
Measuring mode	Mainstream
Model	A57.049-301: CO_2, O_2, N_2O, HAL, ENF, ISO, SEV, DES (with Manual identification of halogenated GAS) A57.049-601: CO_2, N_2O, HAL, ENF, ISO, SEV, DES (with Automatic identification of halogenated GAS)
Dimensions and weight	37 x 27 x 25 mm < 30 g (cable not included)
General specifications	See on relative Multigas Analyzer Modules technical data sheet

POWER SUPPLY

Electric power supply	220 Vac 50-60 Hz (110 Vac optional)
Power	50 W
Internal power supply	12Vdc battery / 3 Ah
Internal battery operation	Max. 1,5 hours
Re-charging time	Around 10 hours

CONFORMITY TO NORMS

Class and type according to IEC 601-1	Class 1 Type B
Class according to EEC 93/42 Directive	Class IIB

EN 1281-1, IEC 601-1, IEC 601-1-2, ISO 5369, BS 4272 : Part 3, Dir.va 93/42 EEC, IEC 601-1-4, UNI EN 740

ACCESSORIES

Supplied accessories

- User's Manual
- O_2 supply hose
- N_2O supply hose
- AIR supply hose
- O_2 supply hose for cylinder
- N_2O supply hose for cylinder
- O_2 cell
- O_2 cell cable
- Supporting arm for patient circuit
- Jar for Venturi aspirator
- Yellow Diss connector
- Silicone patient circuit for adults
- Mapleson C patient circuit for adults
- KIT for manual ventilations
- Scavenging hose
- Power supply cable

Optional accessories See on Export Price List

SIARE applies the UNI EN ISO 13485:2004 and EEC/93/42 Directive Quality System.

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